AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An air monitoring system for monitoring indoor locations, comprising:

an air monitoring unit including at least one sensor for acquiring air quality parameter data at at least one indoor location;

a source of environmental data representative of the outside of a building in which at least one indoor location is being monitored; and

a computer including an expert system for controlling the air monitoring unit based at least in part on the acquired air quality parameter data, the expert system using at least a rule-based method to determine a decision for controlling the air monitoring unit;

wherein the expert system is adapted to provide an air quality analysis based at least in part on the acquired air quality parameter data and the environmental data.

2. (Currently amended) The air monitoring system of claim 1, wherein the expert system is adapted to analyze data from the air monitoring unit based at least in part on the acquired air quality parameter data.

3. (Canceled)

4. (Currently Amended) The air monitoring system of claim 1, wherein:

the expert system is adapted to configure a test to be performed by the air monitoring unit including at least the location of the test or the time duration for the test.

5. (Original) The air monitoring system of claim 1, wherein the expert system is adapted to provide a recommendation for improving the air quality parameter data.

6. (Currently amended) The air monitoring system of claim 1, wherein the air monitoring unit is portable.

7. (Original) The air monitoring system of claim 1, wherein the expert system is provided within the air monitoring unit.

8. (Original) The air monitoring system of claim 1, wherein the air monitoring unit includes a program for acquiring the air quality parameter data and the expert system is adapted to modifying the program.

9-15. (Canceled)

16. (Previously presented) An air monitoring system for monitoring indoor locations, comprising:

an air monitoring unit including at least one sensor for measuring air quality parameter data at at least one indoor location, and a computer for storing the data received from the at least one sensor;

a remote data center including,

a database for storing the air quality parameter data, and

an expert system interactive with the air quality parameter data for analysis of the air quality parameter data, the expert system using at least one of a rule-based method, a case-based method, or a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data; and

a communication link between the remote data center and the air monitoring unit, the communication link including a data communication network that is adapted to handle communications between two or more other devices in addition to the communications between the remote data center and the air monitoring unit;

wherein the remote data center sends information to the air monitoring unit through the communication link to modify the function of the air monitoring unit.

17. (Previously presented) The air monitoring system of claim 16, wherein the expert system generates the information, and is adapted to send the information to the air monitoring unit.

18. (Previously presented) The air monitoring system of claim 16, wherein the expert system is adapted to send information to the air monitoring unit to command the air monitoring unit to take a grab sample.

19. (Previously presented) The air monitoring system of claim 16, wherein the air monitoring unit includes operational parameters, and the remote data center is adapted to send information to the unit to change the operational parameters.

20. (Previously presented) The air monitoring system of claim 16, wherein the air monitoring unit includes a program to instruct the air monitoring unit in measuring air quality parameter data, and the remote data center is adapted to send information to the air monitoring unit to change the program.

21. (Previously presented) The air monitoring system of claim 16, wherein the air monitoring unit includes a set-up parameter, and the remote data center is adapted to change the set-up parameter in the air monitoring unit.

22. (Previously presented) The air monitoring system of claim 16, wherein the communications link includes the Internet.

23-33. (Canceled)

34. (Currently amended) Apparatus for monitoring indoor locations, comprising:

an air monitoring system having at least one sensor for acquiring air quality parameter data at at least one selected indoor location;

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a source of environmental data representative of the outside of a building in which at least one indoor location is being monitored; and

a computer comprising an expert system for analyzing the acquired air quality parameter data and reaching a conclusion regarding air quality of the selected indoor location;

wherein the expert system is adapted to provide an air quality analysis based at least in part on the acquired air quality parameter data and the environmental data, the expert system using at least a rule-based method to process the air quality parameter data.

35. (Previously presented) Apparatus as defined in claim 34, wherein the computer comprising the expert system is a local part of the air monitoring system.

36. (Previously presented) Apparatus as defined in claim 34, wherein the computer comprising the expert system is remotely located from said air monitoring system with communications between the expert system and the air monitoring system that at least includes information related to the air quality parameter data acquired by the air monitoring system.

37. (Currently amended) Apparatus as defined in claim 34, wherein said expert system for analyzing the acquired air quality parameter data additionally analyzes information representative of the selected indoor location in order to reach said conclusion.

38. (Original) Apparatus as defined in claim 34, wherein said expert system comprises two or more experts for determining intermediate results and an expert coordinator for combining said intermediate results to reach said conclusion.

39. (Previously presented) Apparatus as defined in claim 34, wherein said expert system can make a recommendation for improving the air quality of the selected indoor location.

40. (Previously presented) Apparatus as defined in claim 34, wherein said expert system can control at least a portion of the operations of said air monitoring system.

41. (Currently amended) Apparatus as defined in claim 34, wherein said expert system can modify at least a portion of the operation of the air monitoring system in response to the acquired <u>air quality parameter</u> ~~sensor~~ data.

42. (Currently amended) Apparatus as defined in claim 34, wherein said air monitoring system further comprises an air sampling device and wherein said expert system can issue a command to said air sampling device to acquire an air sample in response to the acquired <u>air quality parameter</u> ~~sensor~~ data meeting a predetermined criteria.

43. (Original) Apparatus as defined in claim 34, wherein said air monitoring system comprises a portable air monitoring unit that is easily movable to different selected indoor locations.

44. (Original) Apparatus as defined in claim 34, wherein said air monitoring system comprises an installed system for monitoring air quality in multiple indoor locations.

45-87. (Canceled)

88. (Previously presented) The air monitoring system of claim 1 wherein expert system is used at least in part to detect anomalies in the air monitoring unit.

89. (Previously presented) The air monitoring system of claim 1 wherein expert system is used at least in part to detect tampered or faulty data.

90-103. (Canceled)

104. (Previously presented) Apparatus as defined in claim 34, wherein the expert system operates at least on occupant symptom data from the-indoor location.

105. (Previously presented) Apparatus as defined in claim 34, wherein the expert system operates at least on user supplied information about the indoor location.

106. (Previously presented) Apparatus as defined in claim 34, wherein the expert system operates at least on historical indoor air quality data in addition to current indoor air quality data from the indoor location.

107. (Previously presented) Apparatus as defined in claim 34, wherein the expert system can learn or improve its effectiveness by accepting user feedback on the effectiveness of its conclusions.

108. (Previously presented) Apparatus as defined in claim 107, wherein data mining is used to assist the learning process.

109-112. (Canceled)

113. (Previously presented) Apparatus as defined in claim 34, wherein the expert system uses two or more of rule, case, or pattern recognition based methods and combines their results to create an overall assessment of the air quality parameter data.

114. (Previously presented) Apparatus as defined in claim 34, wherein the expert system uses blackboarding techniques to combine multiple expert system methods.

115. (Previously presented) Apparatus as defined in claim 114, wherein a web session is used as the expert system blackboard.

116-149. (Canceled)

150. (Currently amended) The air monitoring system of claim 1, wherein the <u>air monitoring</u> unit is an installed system.

151. (Currently amended) The air monitoring system of claim <u>1</u>[[3]], wherein the source of environmental data is from at least one location outside the building for which the air monitoring unit acquired air quality <u>parameter</u> or environmental data.

152. (Currently amended) An air monitoring system for monitoring indoor locations, comprising:

an air monitoring unit including at least one sensor for acquiring air quality parameter data at at least one indoor location, the at least one sensor including at least a carbon dioxide sensor and a TVOC sensor; and

a computer including an expert system for controlling the air monitoring unit based at least in part on the acquired air quality parameter data, the expert system using at least a case-based method to determine a decision for controlling the air monitoring unit.

153. (Currently amended) The air monitoring system of claim 152, wherein the expert system is adapted to analyze data from the air monitoring unit based at least in part on the acquired air quality parameter data.

154. (Previously presented) The air monitoring system of claim 152, wherein the expert system is adapted to provide a recommendation for improving the air quality parameter data.

155. (Currently amended) The air monitoring system of claim 152, wherein the expert system is used at least in part to detect tampered or faulty data.

156. (Currently amended) An air monitoring system for monitoring indoor locations, comprising:

an air monitoring unit including at least one sensor for acquiring air quality parameter data at at least one indoor location; and

a computer including an expert system for controlling the air monitoring unit based at least in part on the acquired air quality parameter data, wherein the computer comprising the expert system is remotely located from said air monitoring system, communications between the

expert system and the air monitoring system at least including information related to the air quality parameter data acquired by the air monitoring system; and

wherein the communications between the expert system and the air monitoring system occurs on a communications link between the expert system and the air monitoring system, the communication link including a data communication network that is adapted to handle communications between two or more other devices in addition to the communications between the expert system and the air monitoring system ~~the expert system using at least a pattern recognition method using fuzzy reasoning over patterns to determine a decision for controlling the air monitoring unit~~.

157. (Currently amended) The air monitoring system of claim 156, wherein the expert system is adapted to analyze data from the air monitoring unit based at least in part on the acquired air quality parameter data.

158. (Previously presented) The air monitoring system of claim 156, wherein the expert system is adapted to provide a recommendation for improving the air quality parameter data.

159. (Currently amended) The air monitoring system of claim 156, wherein the expert system is used at least in part to detect tampered or faulty data.

160. (Previously presented) The air monitoring system of claim 16, wherein the remote data center is adapted to send information to the air monitoring unit to command the air monitoring unit to take a grab sample.

161. (Previously presented) The air monitoring system of claim 16, wherein the communications link includes a building's data network.

162. (Previously presented) The air monitoring system of claim 16, wherein the communications link includes a building control system network.

163. (Previously presented) The air monitoring system of claim 16, wherein the communications link includes a local area network.

164. (Previously presented) The air monitoring system of claim 16, wherein at least a portion of the communications between the remote data center and the air monitoring unit is encrypted.

165-168. (Canceled)

169. (Previously presented) Apparatus as defined in claim 34, wherein said expert system uses at least both a rule-based method and a case-based method to process the air quality parameter data.

170. (Previously presented) Apparatus as defined in claim 34, wherein said expert system uses at least both a rule-based method and a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

171. (Previously presented) Apparatus as defined in claim 34, wherein said expert system uses at least both a case-based method and a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

172. (Currently amended) Apparatus as defined in claim 34, wherein said expert system uses at least a case-based method, a rule-based method, ~~and~~ or a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

173. (Canceled)

174. (Currently amended) Apparatus as defined in claim ~~173~~34, wherein the source of environmental data is from at least one location outside the building for which the air monitoring ~~unit~~ system acquired air quality parameter or environmental data.

175. (Currently amended) Apparatus as defined in claim 34, wherein the expert system is used at least in part to detect tampered or faulty data.

176. (Previously presented) Apparatus as defined in claim 34, wherein said air monitoring system has sensors for at least acquiring three different types of air quality parameter data.

177. (Previously presented) Apparatus as defined in claim 34, wherein said air monitoring system has at least a carbon dioxide sensor, a particle sensor, and a humidity sensor.

178. (Previously presented) Apparatus as defined in claim 34, wherein said air monitoring system has at least a carbon dioxide sensor and a TVOC sensor.

179. (Previously presented) The apparatus as defined in claim 36, wherein at least a portion of the communications between the remotely located expert system and the air monitoring system is encrypted.

180. (Previously presented) The apparatus as defined in claim 36, wherein the communications between the expert system and the air monitoring system occurs on a communications link between the expert system and the air monitoring system, the communication link including a data communication network that is adapted to handle communications between two or more other devices in addition to the communications between the expert system and the air monitoring system.

181. (Currently amended) Apparatus for monitoring indoor locations, comprising:

an air monitoring system having at least one sensor for acquiring air quality parameter data at at least one selected indoor location, said air monitoring system having at least a carbon dioxide sensor and a TVOC sensor; and

a computer comprising an expert system for analyzing the acquired air quality parameter data and reaching a conclusion regarding air quality of the selected indoor location, the expert system using at least a case-based method to process the air quality parameter data.

182. (Currently amended) Apparatus as defined in claim 181, wherein the expert system uses at least a case-based method, a rule-based method, or a pattern recognition method using fuzzy reasoning over patterns, to process the air quality parameter data, and wherein the computer comprising the expert system is remotely located from said air monitoring system with communications between the expert system and the air monitoring system that at least includes information related to the air quality parameter data acquired by the air monitoring system.

183. (Previously presented) Apparatus as defined in claim 182, wherein at least a portion of the communications between the remotely located expert system and the air monitoring system is encrypted.

184. (Previously presented) Apparatus as defined in claim 182, wherein the communications between the expert system and the air monitoring system occurs on a communications link between the expert system and the air monitoring system, the communication link including a data communication network that is adapted to handle communications between two or more other devices in addition to the communications between the expert system and the air monitoring system.

185. (Previously presented) Apparatus as defined in claim 181, wherein said expert system can make a recommendation for improving the air quality of the selected indoor location.

186. (Currently amended) Apparatus as defined in claim 181, wherein the expert system operates at least on user supplied information about the at least one selected indoor location building location.

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187. (Currently amended) Apparatus as defined in claim 181, wherein the expert system operates at least on historical indoor air quality data in addition to current indoor air quality data from the at least one selected indoor location building location.

188. (Previously presented) Apparatus as defined in claim 181, further comprising:

a source of environmental data representative of the outside of a building in which at least one indoor location is being monitored;

wherein the expert system uses at least a case-based method, a rule-based method, or a pattern recognition method using fuzzy reasoning over patterns, to process the air quality parameter data, and wherein the expert system is adapted to provide an air quality analysis based at least in part on the acquired air quality parameter data and the environmental data.

189. (Currently amended) Apparatus as defined in claim 181, wherein the expert system is used at least in part to detect tampered or faulty data.

190. (Previously presented) Apparatus as defined in claim 181, wherein said air monitoring system has at least a carbon dioxide sensor, a particle sensor, and a humidity sensor.

191. (Canceled)

192. (Currently amended) Apparatus for monitoring indoor locations, comprising:

an air monitoring system having at least one sensor for acquiring air quality parameter data at at least one selected indoor location; and

a computer comprising an expert system for analyzing the acquired air quality parameter data and reaching a conclusion regarding air quality of the selected indoor location, wherein the computer comprising the expert system is remotely located from said air monitoring system with communications between the expert system and the air monitoring system at least including information related to the air quality parameter data acquired by the air monitoring system; and

wherein communications between the expert system and the air monitoring system occurs on a communications link between the expert system and the air monitoring system, the communication link including a data communication network that is adapted to handle communications between two or more other devices in addition to the communications between the expert system and the air monitoring system the expert system using at least a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

193. (Currently amended) Apparatus as defined in claim 192, wherein the expert system uses at least a case-based method, a rule-based method, or a pattern recognition method using fuzzy reasoning over patterns, to process the air quality parameter data computer comprising the expert system is remotely located from said air monitoring system with communications between the expert system and the air monitoring system that at least includes information related to the air quality parameter data acquired by the air monitoring system.

194. (Currently amended) Apparatus as defined in claim 193192, wherein at least a portion of the communications between the remotely located expert system and the air monitoring system is encrypted.

195. (Canceled)

196. (Previously presented) Apparatus as defined in claim 192, wherein said expert system can make a recommendation for improving the air quality of the selected indoor location.

197. (Currently amended) Apparatus as defined in claim 192, wherein the expert system operates at least on user supplied information about the at least one selected indoor location building location.

198. (Currently amended) Apparatus as defined in claim 192, wherein the expert system operates at least on historical indoor air quality data in addition to current indoor air quality data from the at least one selected indoor location building location.

199. (Currently amended) Apparatus as defined in claim ~~192~~193, further comprising:

a source of environmental data representative of the outside of a building in which at least one indoor location is being monitored;

wherein the expert system is adapted to provide an air quality analysis based at least in part on the acquired air quality parameter data and the environmental data.

200. (Currently amended) Apparatus as defined in claim 192, wherein the expert system is used at least in part to detect tampered or faulty data.

201. (Previously presented) Apparatus as defined in claim 192, wherein said air monitoring system has at least a carbon dioxide sensor, a particle sensor, and a humidity sensor.

202. (Previously presented) Apparatus as defined in claim 192, wherein said air monitoring system has at least a carbon dioxide sensor and a TVOC sensor.

203. (Canceled)

204. (New) Apparatus as defined in claim 192, wherein the computer comprising the expert system is a local part of the air monitoring system.

205. (New) Apparatus as defined in claim 192, wherein said expert system comprises two or more experts for determining intermediate results and an expert coordinator for combining said intermediate results to reach said conclusion.

206. (New) Apparatus as defined in claim 192, wherein said expert system can control at least a portion of the operations of said air monitoring system.

207. (New) Apparatus as defined in claim 192, wherein said expert system can modify at least a portion of the operation of the air monitoring system in response to the acquired air quality parameter data.

208. (New) Apparatus as defined in claim 192, wherein said air monitoring system further comprises an air sampling device and wherein said expert system can issue a command to said air sampling device to acquire an air sample in response to the acquired air quality parameter data meeting a predetermined criteria.

209. (New) Apparatus as defined in claim 192, wherein said air monitoring system comprises a portable air monitoring unit that is easily movable to different selected indoor locations.

210. (New) Apparatus as defined in claim 192, wherein said air monitoring system comprises an installed system for monitoring air quality in multiple indoor locations.

211. (New) Apparatus as defined in claim 192, wherein the expert system operates at least on occupant symptom data from the indoor location.

212. (New) Apparatus as defined in claim 192, wherein the expert system can learn or improve its effectiveness by accepting user feedback on an effectiveness of its conclusions.

213. (New) Apparatus as defined in claim 212, wherein data mining is used to assist the expert system in learning.

214. (New) Apparatus as defined in claim 192, wherein the expert system uses two or more of rule, case, or pattern recognition based methods and combines their results to create an overall assessment of the air quality parameter data.

215. (New) Apparatus as defined in claim 192, wherein the expert system uses blackboarding techniques to combine multiple expert system methods.

216. (New) Apparatus as defined in claim 215, wherein a web session is used as the expert system blackboard.

217. (New) Apparatus as defined in claim 192, wherein said expert system uses at least both a rule-based method and a case-based method to process the air quality parameter data.

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218. (New) Apparatus as defined in claim 192, wherein said expert system uses at least both a rule-based method and a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

219. (New) Apparatus as defined in claim 192, wherein said expert system uses at least both a case-based method and a pattern recognition method using fuzzy reasoning over patterns to process the air quality parameter data.

220. (New) Apparatus as defined in claim 199, wherein the source of environmental data is from at least one location outside the building for which the air monitoring system acquired air quality parameter data.

221. (New) Apparatus as defined in claim 192, wherein said air monitoring system has sensors for at least acquiring three different types of air quality parameter data.